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IS 11903 (1986): Caps for Aircraft Tyre Tube Valves [TED 14: Aircraft and Space Vehicles]

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AMENDMENT NO. 1 APRIL 2002
TO
IS 11903 : 1986 SPECIFICATION FOR CAPS FOR AIRCRAFT TYRE TUBE VALVES

(*Page* 2, *clause* **5.1.5**) — Insert the following new clause after **5.1.5**:

'**5.2 Retest**

In case of failure in any test parameter, twice the sample size shall be taken and subjected to test for the failed parameter. The batch shall be accepted if all the samples pass the test.'

(TED 14)

Reprography Unit, BIS, New Delhi, India

UDC 629·73 : 629·11·012·551-396·98

IS : 11903 - 1986

Indian Standard

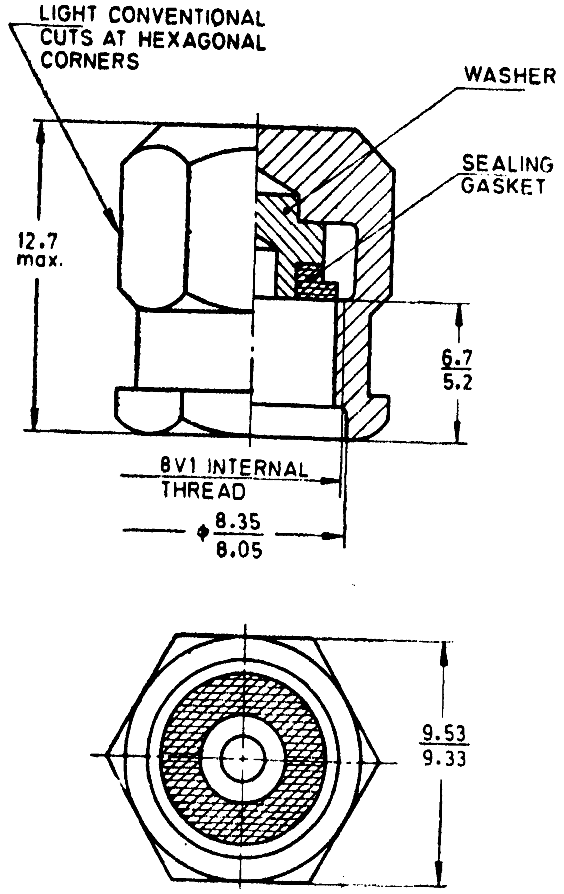
REAFFIRMED

- / FEB 2007

SPECIFICATION FOR CAPS FOR AIRCRAFT TYRE TUBE VALVES

1. Scope — Covers dimensional and performance requirements of valve caps used with valves for aircraft tyre tubes. The valve cores are separately covered.

2. Shape and Dimensions — Shall conform to Fig 1.



All dimensions in millimetres.

FIG. 1 SHAPE AND DIMENSIONS FOR AIRCRAFT TYRE TUBE VALVE CAP

2.1 The threads in the valve caps shall conform to IS : 9449 (Part 1)-1980 ' Dimensions for tyre valve threads: Part 1 Threads 5V1, 5V2, 6V1 and 8V1'.

3. Material — Shall be made from brass conforming to IS : 2704-1983 'Specification for brass wire for cold-headed and machined parts (*first revision*)' or IS : 4170-1967 ' Specification for brass rods for general engineering purposes '. The sealing gasket shall be of rubber or any other compatible material resistant to hydraulic fluids used in aircraft. It shall be homogeneous to ensure consistent swell in strength and hardness characteristics. When subjected to accelerated ageing in air the decrease in tensile strength and the elongation of the gasket material shall not exceed 20 percent and 30 percent respectively. The shore durometer hardness change shall also be 10 percent *Max*.

4. General Requirements — The cap shall be finished smooth and to size. It shall be free from burrs and other machining defects. The threads shall be true and gauging shall be in accordance with IS : 2334-1975 ' Gauging practice for ISO metric screw threads (*first revision*) '.

Aircraft and Space Vehicles Sectional Committee, EDC 74; Panel for Aircraft Tyres and their Associated Accessories, EDC 74/P-4 [Ref : Doc : EDC 74 (4227)]

Adopted 18 November 1986 | © May 1987, BIS | Gr 1

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NEW DELHI 110002

5. Tests

5.1 *Leakage Test* — When hand screwed on valve stem, the cap shall be capable of stopping leakage of air at 700 kPa. No air bubble, when immersed in water, shall appear within 30 seconds of application of air pressure.

5.1.1 When tightened to a torque of 0·79 Nm the cap shall not malfunction in any manner at all operating conditions up to the design operating pressure of 3 800 kPa. Valve caps shall then be checked for any evidence of leakage. No leakage is permissible.

5.1.2 *Pull-Up* — Three new caps and the three caps aged in air as per **5.1.5** shall be assembled and disassembled on a valve stem at least 10 times at a wrench torque of 0·56 Nm *Min*. Each assembly and disassembly shall consist of a complete tightening to the specified torque and then loosened until the seat has ceased making contact with the valve body. Valve cap shall then be subjected to leakage test in accordance with **5.1.1**.

5.1.2.1 At least 5 of these pull-ups shall be made at a temperature not warmer than – 54°C after the caps have been exposed to this temperature for a minimum of 72 hours. During this cold soaking period, the caps shall not be tightened on the valve stem.

5.1.3 The caps used on the pull-up test specified in **5.1.2** shall be retightened on valve stems with 0·56 to 0·79 Nm torque. The caps shall be tested for one hour at 70 kPa and for one hour at 3 800 kPa. No leakage shall occur during the one hour test period.

5.1.3.1 The caps, still on the bodies, at the same torque, shall be chilled to at least –54°C for 24 hours while maintaining air pressure of not less than 3 800 kPa in the inside of the caps. No leakage shall occur.

5.1.3.2 Leakage may be checked by immersion under water or other transparent liquid or by securely fastening a deflated rubber bag on the valve body in such a manner that all leakage from the cap would be trapped in the bag.

5.1.4 *Examination after test* — After completion of the tests in accordance with **5.1**, **5.1.1**, **5.1.2** and **5.1.3** all the caps shall be examined for deterioration and failure. There shall be no separation of the gasket from the swivel plate, and the swivel shall not be tightly jammed into the housing. There shall be no evidence of excessive wear or deterioration, such as flaking, cracking, or cutting of the seat material. A compression set of the valve cap gasket in the form of a circular groove at the contact point with the valve stem, and a slight roughening of the seat material, shall not be interpreted as excessive wear or deterioration.

5.1.5 All valve caps taken for tests shall be aged in an air oven at 93°C for seven days prior to testing.

6. Workmanship and Finish

6.1 The valve caps shall be painted yellow. The paint shall not peel off in usage. The swivel gasket assembly shall swivel freely in the cap shell and shall not dislodge during normal service handling or usage. The cap threads shall not wear off or strip when screwed and unscrewed fully at least 50 times.

7. Marking — Caps shall be suitably marked with manufacturer's identification. Any other marking as approved by statutory authorities shall also be included.

7.1 *Certification Marking* — Details available with the Bureau of Indian Standards.

8. Packing — Shall be as per best prevalent trade practice.

9. Sampling

9.1 *Lot* — A lot shall consist of all valve caps manufactured under the same conditions under one continuous production run.

9.1.1 For the purposes of testing six caps shall be selected at random. The method of sampling shall be in accordance with IS : 4905-1968 ' Methods for random sampling '.

9.1.2 A lot shall be considered as conforming to the standard if all the caps in the sample pass the tests.

EXPLANATORY NOTE

In the preparation of this Indian Standard, assistance has been derived from:

ISO draft proposal ISO/TC 31/SC9N159 ' Valve cap — Performance and qualification '.

BS C47-1967 ' Interconnectability of aircraft tyre valves '.

Valve cores are separately covered in IS : 11887-1986 ' Specification for cores for aircraft tyre tube valves '.

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